

G. P. GORDON.
PRINTING PRESS.

No. 36,840.

Patented Nov. 4, 1862.

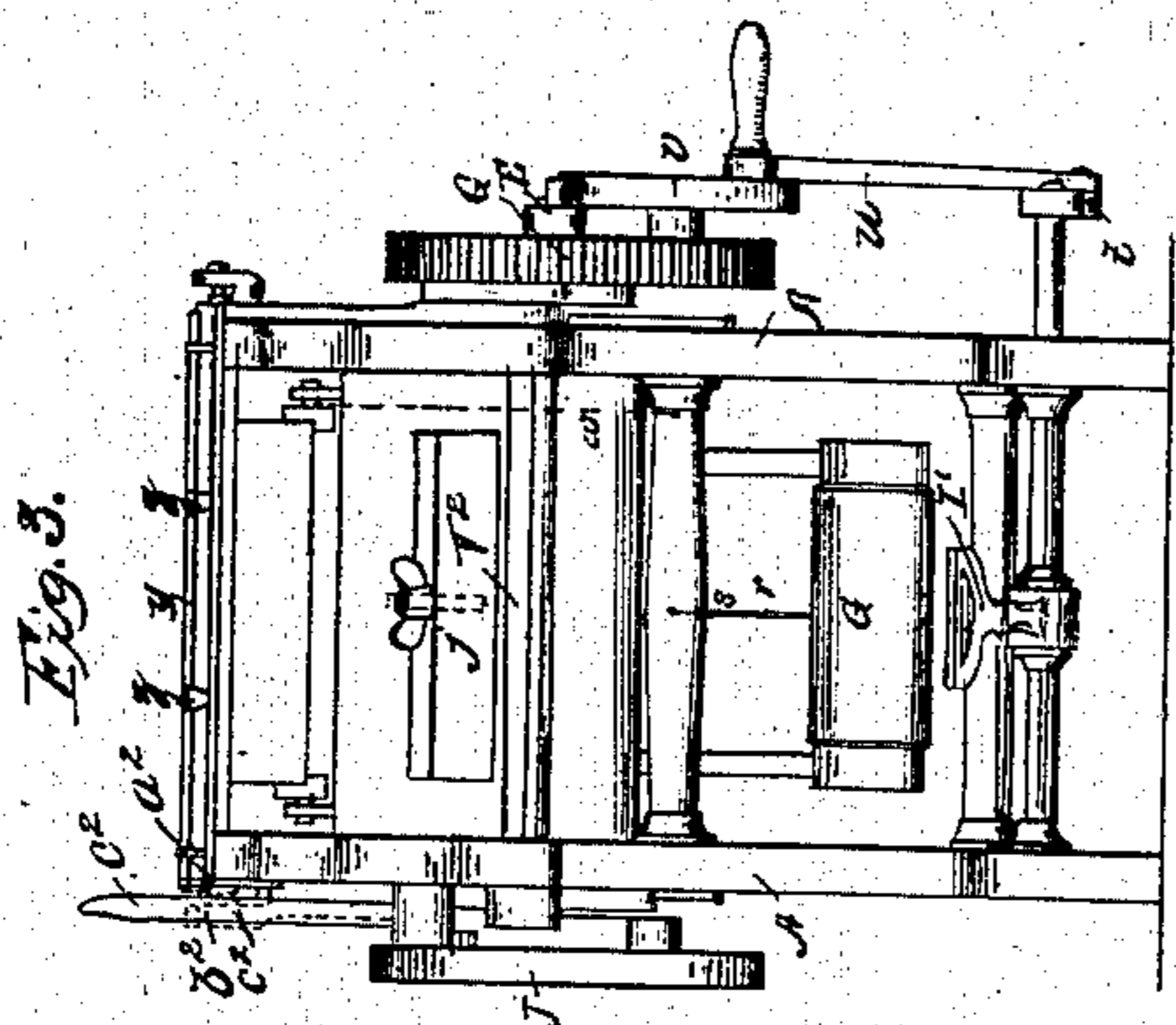


Fig. 3.

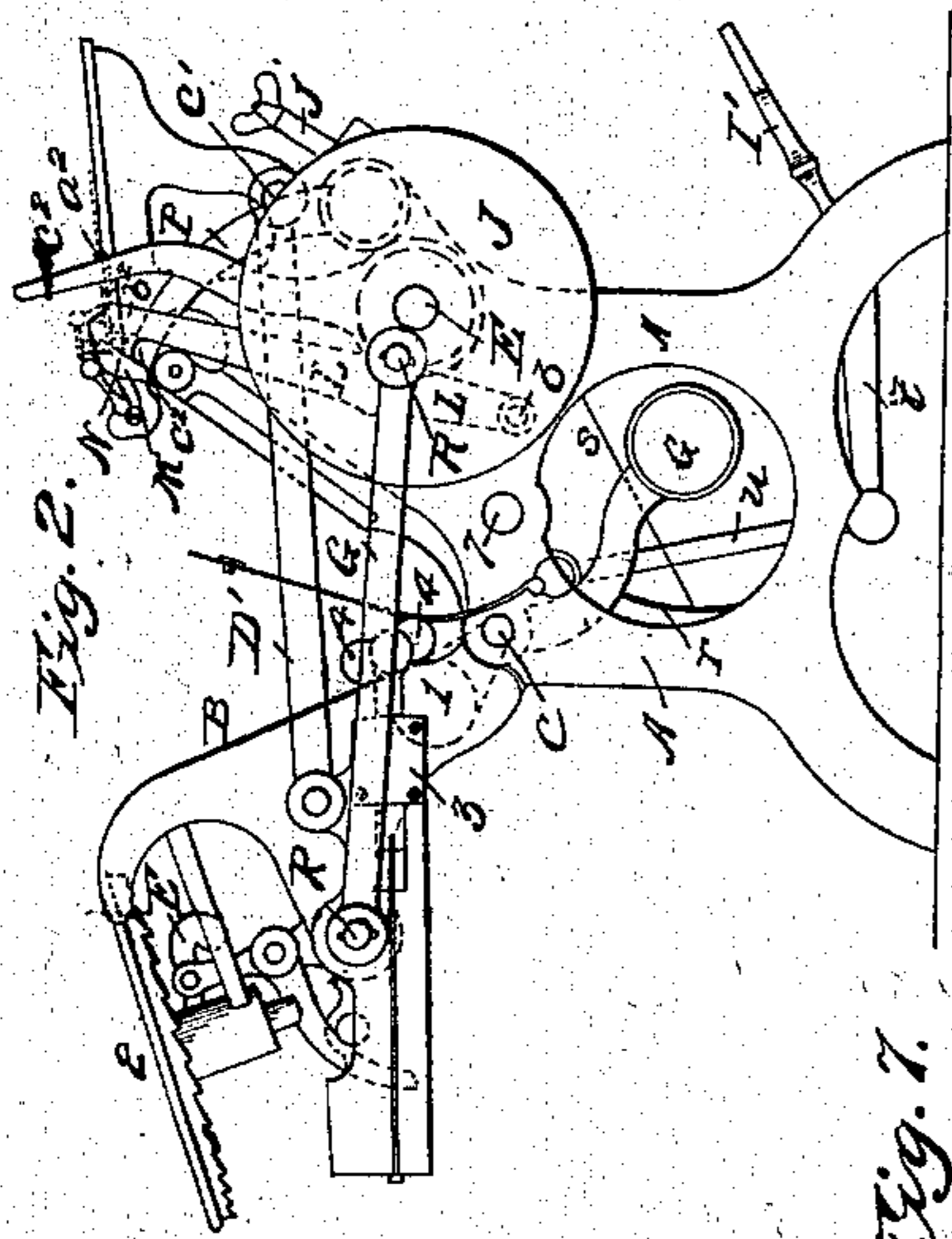


Fig. 2.

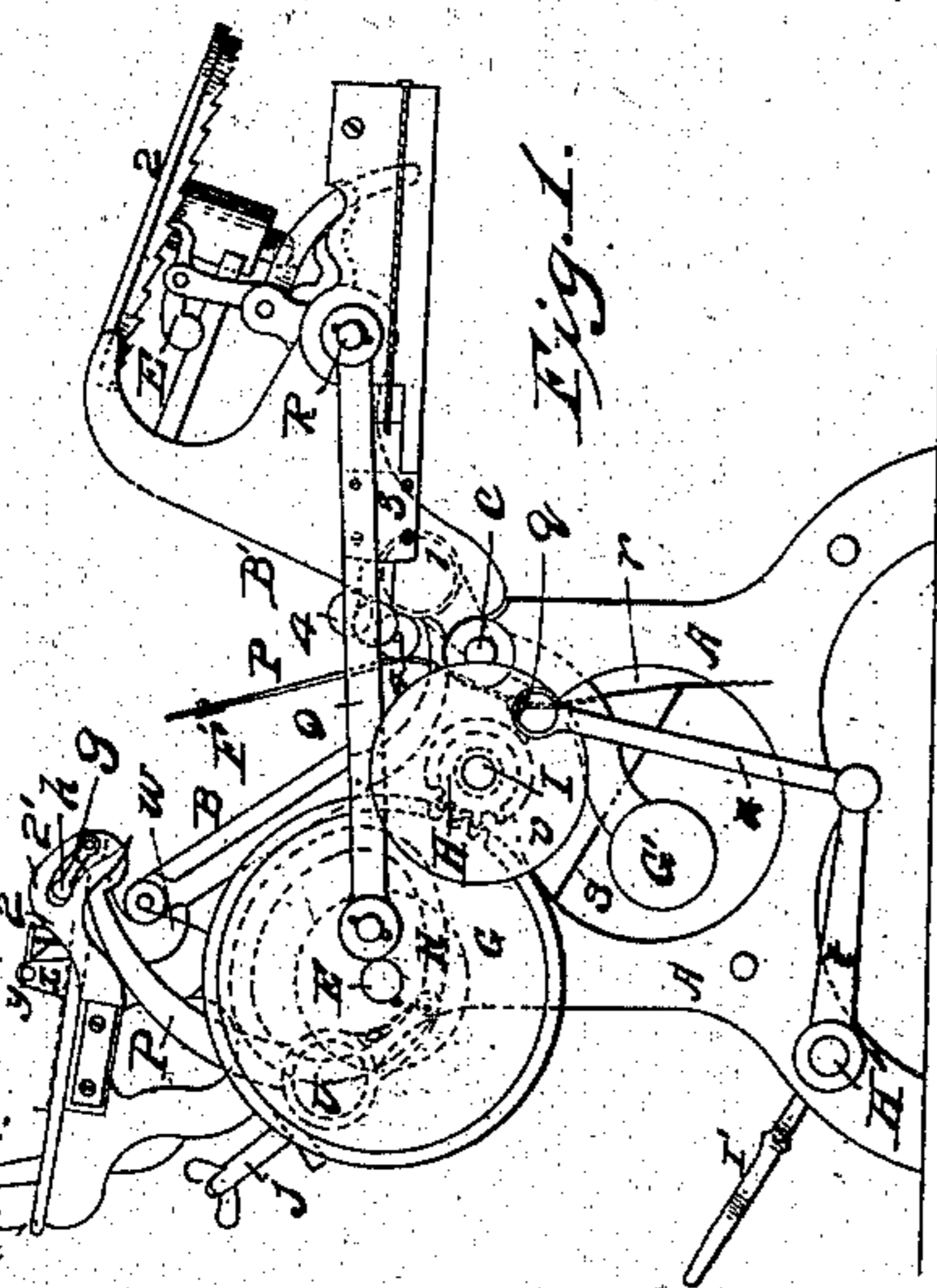


Fig. 1.

Witnesses:
Henry G. G. G.
A. G. G.

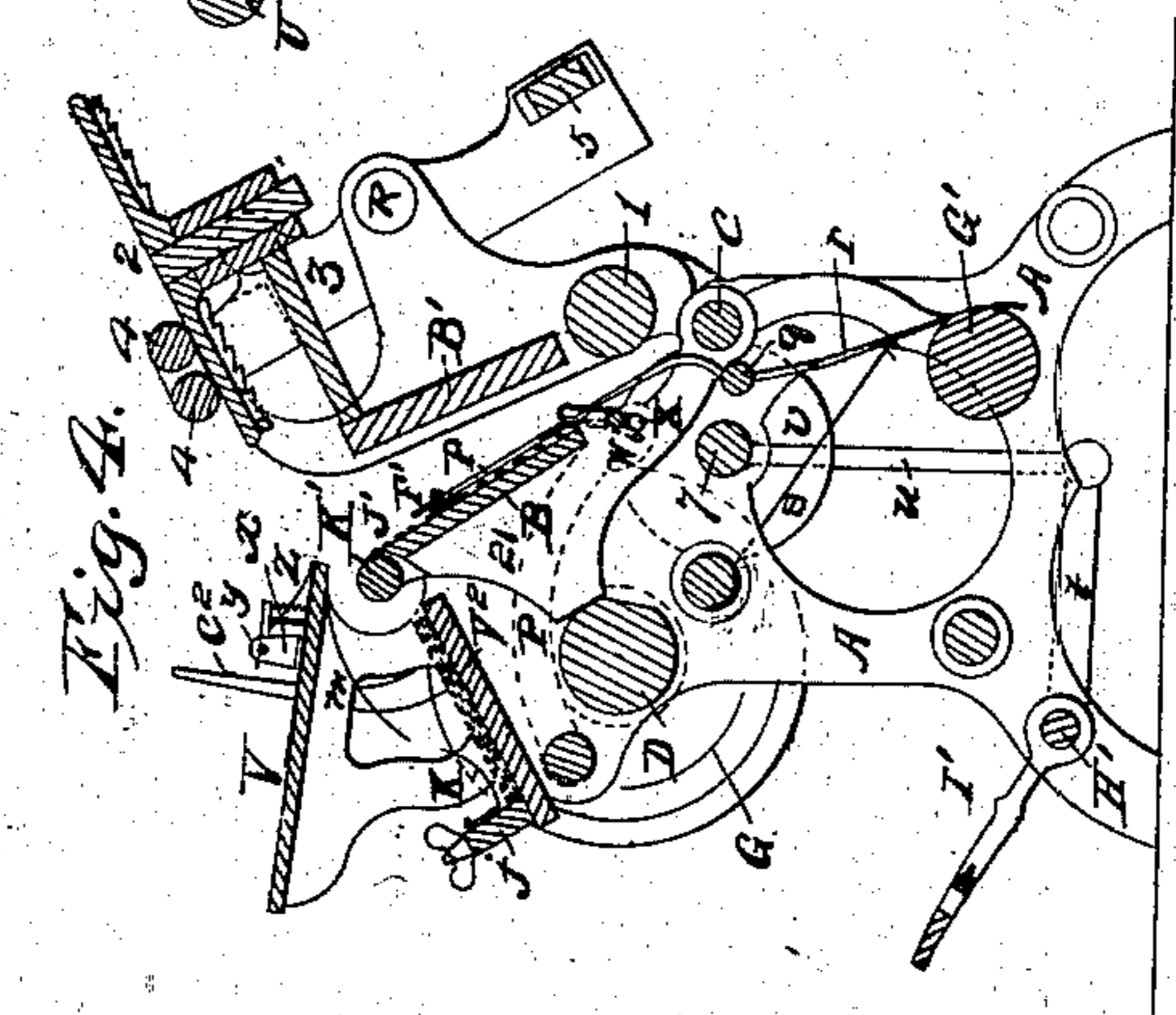


Fig. 4.

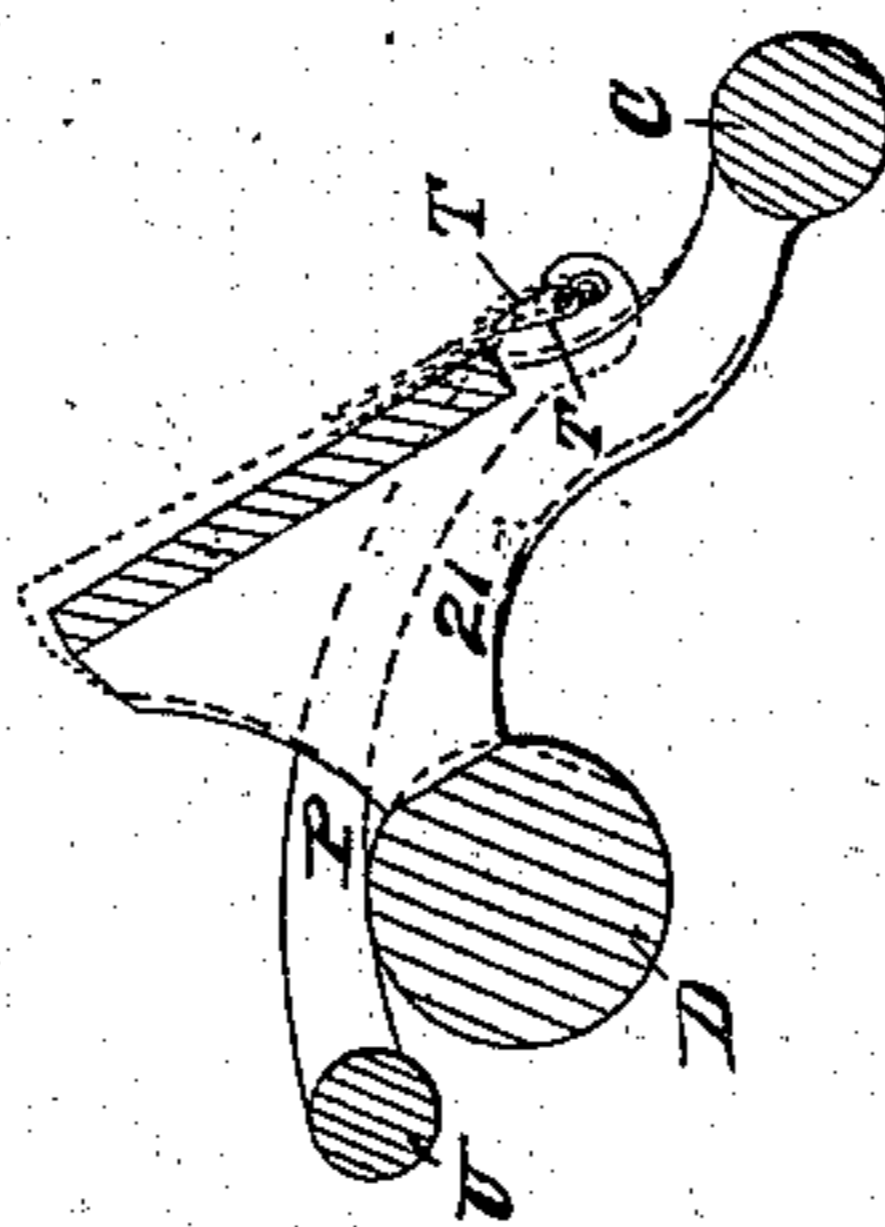


Fig. 5.

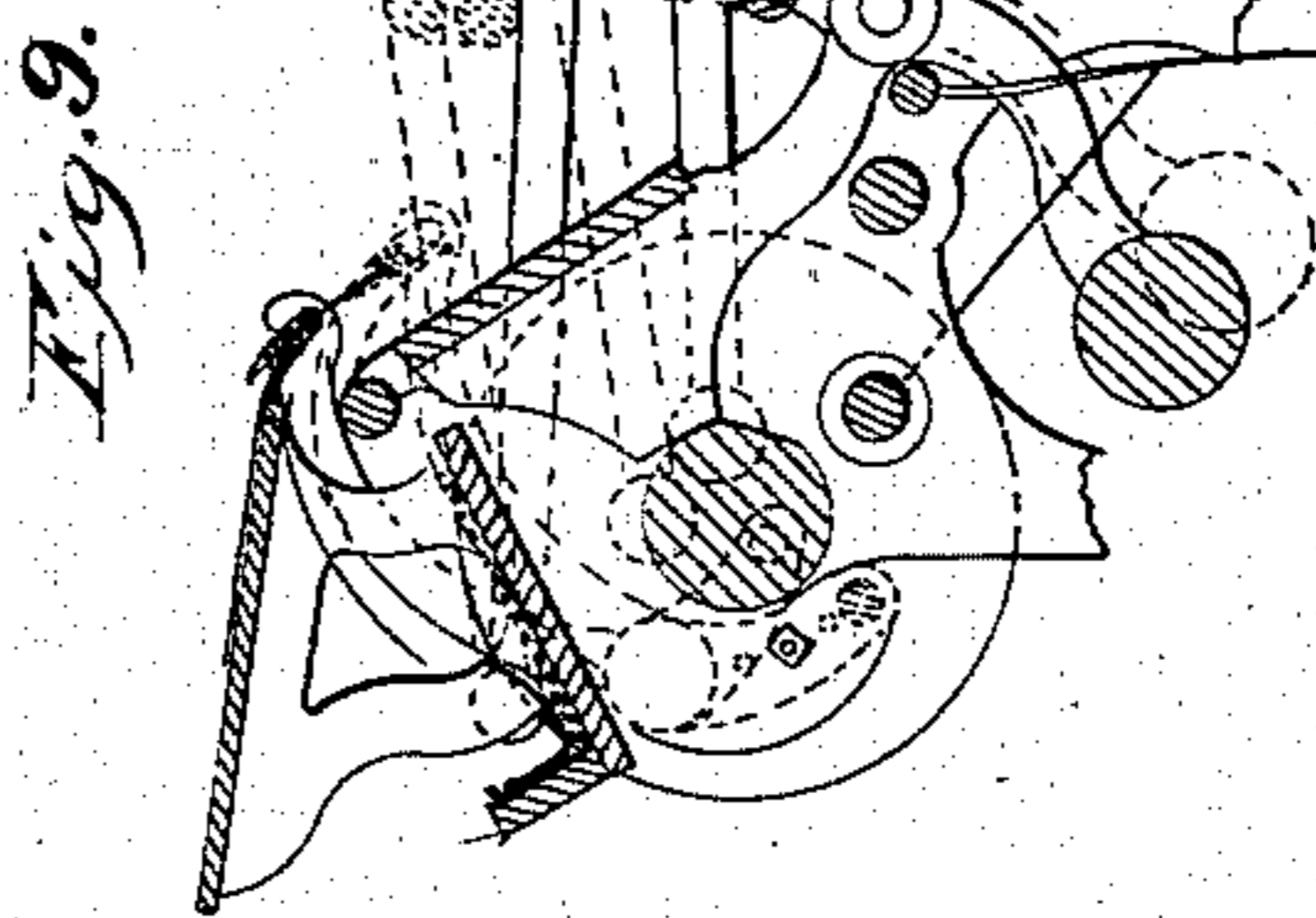


Fig. 9.

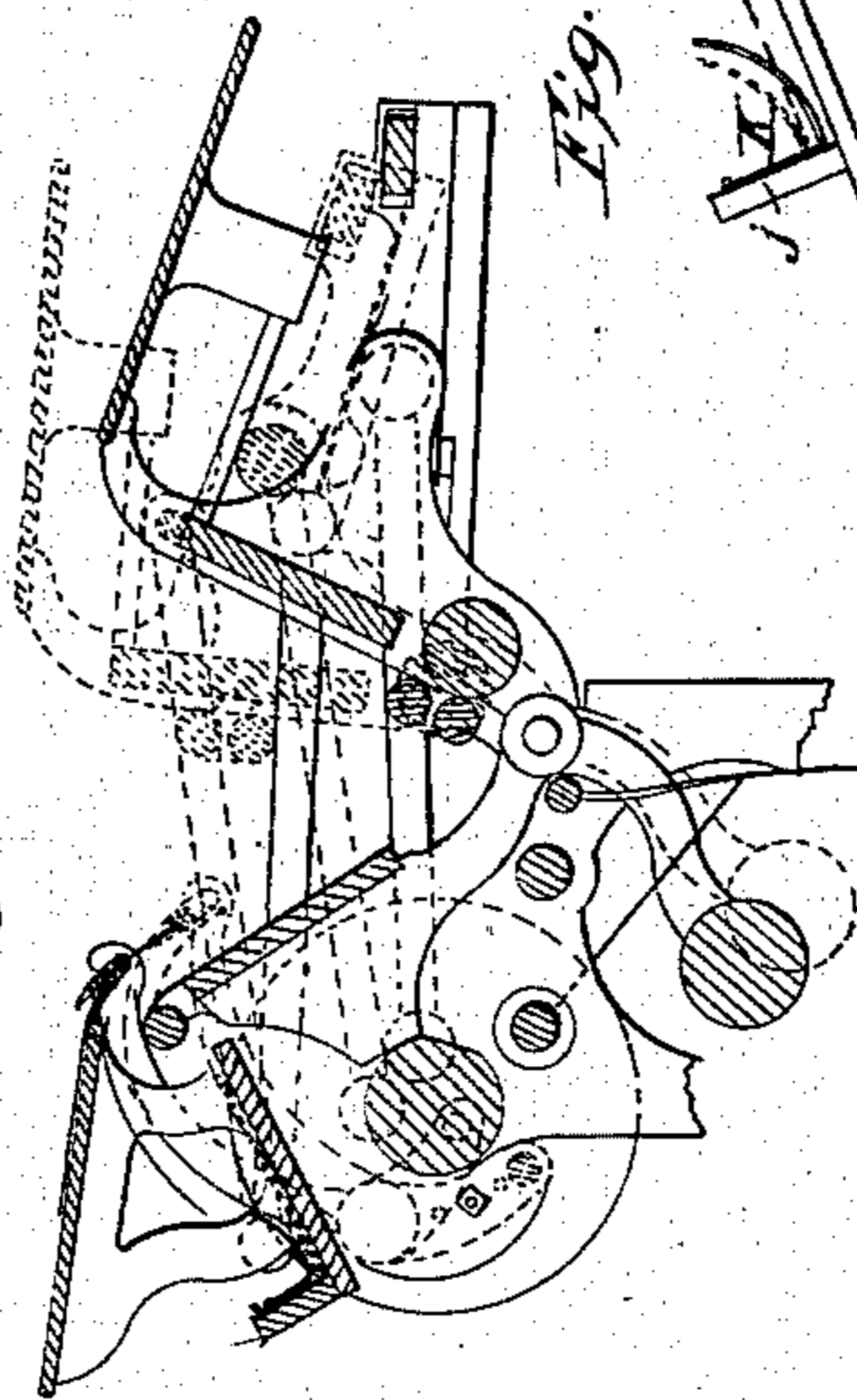


Fig. 8.



Fig. 6.

Geo. P. Gordon
by his atty
Attest: J. G. G.

UNITED STATES PATENT OFFICE.

GEORGE P. GORDON, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN PRINTING-PRESSES.

Specification forming part of Letters Patent No. 36,840, dated November 4, 1862.

To all whom it may concern:

Be it known that I, GEORGE P. GORDON, of Brooklyn, in the county of Kings, in the State of New York, have invented, made, and applied to use certain new and useful Improvements in Printing-Presses; and I do declare the following to be a full, clear, and correct description of the same, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a side elevation showing one side of my improved printing-press; Fig. 2, a side elevation showing opposite side of my improved printing-press; Fig. 3, an end view of the same; Fig. 4, a transverse sectional view of the same; Fig. 5, a view showing crank-arm and roller detached when desired to suspend the operation of the sheet-taking nippers; Fig. 6, a view showing construction of the sheet-taking nippers employed; Fig. 7, a view showing plate with the sheet-taking nippers in position to receive an impression, also showing operation of the same when the impression is suspended; Fig. 8, a view showing the construction of the sheet catches or holders; Fig. 9, a side elevation of improved printing-press, showing the delivery of the printed sheet.

In the drawings like parts of the invention are designated by the same letters of reference.

The nature of my invention consists in the use or employment of a platen which shall be stationary for the reception of the sheet, and for the reception of the impression when such plate shall be vibrated for the purpose of suspending the impression: (c) when such platen shall be hung upon the same shaft as the bed, for the purpose shown; (b) when such platen shall be placed in an inclined position or at an angle from a horizontal or from a vertical position, for the purpose of causing the sheet to be printed to lie upon such inclined platen by its own gravity, that such platen may act in harmony with the sheet-taking nippers, nipper-arms, and rolling tympan for the delivery of the printed sheet, and for the further purpose of enabling the operator to get at the platen readily to "make ready" and "overlay," which is of great importance; (d) in combining such platen with the sheet-taking nippers held and carried as shown, for the purpose specified; (e) in combining such platen

with the rocking nipper-arms and the rolling tympan, as hereinafter fully described.

The nature of my invention further consists in the use or employment of the sheet-taking nippers: (a) when the same shall be held and carried by the rocking nipper-arms and combined with a stationary feed-table, for the purpose shown; (b) when the same shall be constructed as shown, for the purpose shown; (c) when the same shall be operated as shown, for the purpose specified; (d) when the same shall be vibrated with the platen, for the purpose described.

The nature of my invention further consists in the use or employment of the sheet guide or shield: (a) when combined with the rocking nipper-arms and a rolling tympan operating as fully shown; (b) when combined with a pile-table, substantially as described.

The nature of my invention further consists in hanging the gripper-frame back of the face-line of the platen, for the purpose fully described.

The nature of my invention further consists in giving to the inking-rollers two distributions of ink for each impression, as hereinafter fully shown, for the purpose specified.

The nature of my invention further consists in detaching and thereby suspending the operation of the nippers, nipper-arms, and tympan, for the purpose specified.

The nature of my invention further consists in the use or employment of the sheet catches or holders: (a) when combined with the pile-table, as shown; (b) when combined with the sheet guide or shield.

The nature of my invention further consists in projecting the feed-table over and beyond the face-line of the platen, for the purpose described.

The nature of my invention further consists in the novel mode of attachment of the treadle, as shown, and in the double use of the crank, for the purposes described.

The nature of my invention further consists in the combination of the sheet-gages, constructed as shown, with the stationary feed-table, for the purpose specified.

To enable those skilled in the art to make and use my invention, I will speak of the construction and operation of the same.

A A show a frame for supporting the working parts of my improved printing-press.

B is a platen hung upon the shaft C at an

angle from a horizontal or from a vertical position, which platen B rests upon the sleeve or collar D, through which sleeve or collar D runs the main shaft E. This shaft E has upon one side the large cog-wheel G, gearing into the pinion H upon the fly-wheel shaft I, while upon the opposite side of the shaft E is the blank-crank J, having cut upon its inner side a cam of the required shape, which cam, through the arm L and its roller *l*, serves to operate the trip M, as hereinafter shown. The cog-wheel G has cut upon its inner side the cam N, which cam N, through the arm O and its roller *o*, operates the nipper-arms P P. The cog-wheel G and blank-crank J form cranks, to which one end of the connecting-rods Q Q are attached, their opposite ends being attached to the shaft R, passing through the back of the bed B', and upon which shaft R are the roller-arms 3.

P P are nipper-arms on either side of the frame A A, for supporting and carrying the sheet-taking nippers T and T', which nipper-arms P P are hung upon the rod U, and are rocked to and from the stationary feed-table V, through the arm O and its roller *o*, playing in the cam N in the cog-wheel G. These nipper-arms P P also support and carry the rod W, or its equivalent, attached to the nipper-arms P P at their forward ends, and under the nippers T and T'.

T and T' show the sheet-tabling nippers, the upper nippers being designated by T and the lower ones by T'. Both the upper (T) and the under (T') nippers are hinged or swiveled upon the shaft X. This shaft X is held in the journal-boxes Y, one at either forward end of the nipper-arms P P, in which journal-boxes Y it (the shaft X) freely plays when the nippers T and T' are operated by the nipper-arms P P.

Z shows a spiral spring wound upon the shaft X, one end of which spring Z is fastened firmly in the upper nippers, T, while its other end is fastened in the lower nippers, T', which spring Z serves to close and hold together the nippers T T' in taking the sheet from the stationary feed-table V.

a is a spiral spring placed upon the shaft X for the purpose of turning the nippers T T' down to the rod W or its equivalent, and holding them there.

b shows a short eccentric-shaft held in the journal-box *c*, firmly attached upon the shaft X. This short eccentric-shaft *b* is provided at one end with the eccentric *d*, and at its other end is attached the crank-arm *e*, with its roller *f*. This eccentric *d* plays freely between the nippers T T', properly fitted for such purpose. This crank-arm *e*, with its roller *f*, is operated by the trip M, as hereinafter shown, and aids in opening and closing the nippers T T'. At the opposite end of the shaft X is attached the crank-arm *g*, with its roller *h*, which crank-arm *g*, through its roller *h*, impinges upon the stationary slotted cam *i* and aids in opening and closing the nippers T T'.

J' shows a tympan-sheet of paper, one end of which is attached to the rod W, or its equivalent, directly under the nippers T T', while the other or opposite end is attached to the roller K', which roller K' is fastened to the platen B. An elastic cord or spring, *w*, is wound around one end of this roller K', one end of which cord or spring *w* is fastened to the roller K' and its other end to the platen B. This cord or spring *w* serves to wind up or roll up the paper tympan-sheet J' upon the roller K' and give the proper tension and smoothness to the paper tympan-sheet J' necessary for the receiving, carrying, printing, and delivering of the sheet.

V shows a stationary feed-table, upon which stationary feed-table V the sheet to be printed is placed, in order that it (the sheet) may be taken therefrom by the nippers T and T'. This feed-table V is projected over and beyond the face-line of the platen B, for the purpose of allowing and insuring the passage of the printed sheet under the table V and its reception by the shield or guide *m*, in order that it may be properly deposited upon the pile-table V² beneath the sheet catches or holders *k k*. This stationary feed-table V has attached to it the supports *x*, for supporting the rod *y*, by which rod *y* the gages *z* are held. These gages *z* are bent or curved upward from their ends, against which the sheet is laid, upward to the rod *y*, upon which they are held, their curve at its commencement running nearly parallel with the feed-table V and gradually rising from the feed-table V until the gages *z* are in line with the rod *y*, upon which rod *y* they are held, the object of these gages *z* being to straighten the edge of the sheet to be taken by the nippers T and T', should there be any upward curl of the edge of the sheet, (as is frequently the case,) and thus present the sheet properly and surely to the nippers T and T'. This rod *y* may be slotted, and the gages *z* held to the same by bolts and nuts, thus rendering the gages *z* adjustable. Upon one side of this stationary feed-table V are placed the vibrating upright *a*² and cam-shaped piece *b*², operated by the pin *c*² upon the trip M, for the purpose of raising the gages *z* and allowing the sheet to be taken from the stationary feed-table V by the nippers T and T'.

The sleeve or collar D, through which the main shaft E runs, and upon and against which the platen B rests, has an arc of its circle cut away, so that upon turning the sleeve or collar D and bringing the plane portion of the same directly behind the plate B, the platen B may vibrate back and be removed a sufficient distance from the bed B' (in which is placed the type or form) to prevent an impression being given by the type upon the sheet held upon the platen B.

C² shows a handle attached firmly to the sleeve or collar D, to operate the same, for the purpose just described.

V² shows the pile-table placed directly under the stationary feed-table V, and properly

inclined for the reception of the printed sheets. This pile-table V^2 is provided with the sliding ledge j , made adjustable to accommodate sheets of different size. On the inner side of this sliding ledge j , and bearing upon the pile-table V^2 , are attached the sheet-catches $k k$, or holders of the sheets after they are printed. These catches $k k$ are pivoted loosely to the sliding ledge j , so that they may freely turn and rise upward from the pile-table V^2 to allow the sheet to pass under them and be held in place by the weight of the catches $k k$. These catches $k k$ are made simply of wire or any suitable light material, straight from their point of attachment to the sliding ledge j and gently curved upward, forward, or from the adjustable ledge j . When these catches $k k$ rest upon the pile-table V^2 , they stand at a slight angle from the perpendicular, in order that they may rise sidewise as the printed sheets they are piled beneath them.

m shows the shield or guide attached to the stationary feed-table V on its under side, and properly curved to guide the sheets in their transit from the rolling tympan to the pile-table V^2 .

B' is a vibrating bed, in which the type or form is placed, which vibrating bed B' is hung upon the shaft C , upon which shaft C is also hung the platen B .

For the purpose of giving more precision and truth to the impression, the platen B and bed B' are hung upon the same shaft, C , as all lateral movement of the platen which might cause "slurring" is obviated. By such an arrangement of the bed B' and platen B greater strength with the least material is given, the frame $A A$ is relieved from bearing the strain of the impressions, and in manufacturing, the bed and platen may be taken apart and put together with rapidity, so necessary in fitting the parts.

Directly beneath the bed B' is placed the ink-distributing cylinder 1. This cylinder 1 may be supplied with ink from a fountain in the usual way. Directly above the bed B' is placed the revolving ink-distributing tabular surface 2. By this arrangement of the inking-surfaces I am enabled to give two distributions of ink to the inking-rollers for each impression, the rollers receiving a supply of ink from the revolving ink-distributing tabular surface placed upon one side of the form, as well as a supply of ink from a revolving cylindrical distributing-surface placed on the other side of the form. These means of distribution are admitted to be the best in use, and by their combination in the manner shown I effect the most thorough means of distributing the ink yet presented.

3 are arms for the purpose of carrying the inking-rollers 4 forward and backward over the form or types and the ink-distributing surfaces 1 and 2, as said arms 3 rock or vibrate. These roller-arms 3 are connected together by a brace, 5, and form, as it were, a frame. These roller-arms 3 rock upon the shaft R ,

and are connected to the stud Q , hung upon the frame $A A$, by means of the connection D' .

The revolving ink-distributing tabular surface 2 is operated by a ratchet, E' , while the ink-distributing cylindrical surface 1 may be made to vibrate and may be driven by a belt or gearing, as desired.

On either side of the platen B , and placed outside of the frame $A A$, are the gripper-supports P^2 , hung upon the rod q . These supports P^2 are hung back of the face-line of the platen B , and are slotted for the reception of the gripper F' , held to the same as in Fig. 1.

Upon the rod q is placed the spring r , which spring r is operated by the counter-balance G' in its movements. This spring r has one end of the elastic cord or spring s attached to it, the other end of said cord or spring s being attached to the frame $A A$. This gripper-frame is hung back of the face-line of the platen B , for the purpose of causing the gripper F' , as it impinges upon the paper laid upon the platen, to push the same (the paper) upward, thus straightening and smoothing out the sheet, while the forward end of the sheet is held in position by the sheet-taking nippers $T T'$.

H' is a treadle rod or shaft running through the frame $A A$, to which treadle rod or shaft H' the treadle I' , inside of the frame $A A$, is attached. This treadle rod or shaft H' is fitted into journals on either side of the press. One end of the rod or shaft H' is projected through the frame $A A$, which projected end has keyed upon it the crank-arm t . The crank-shaft u is properly fitted into the opposite end of this arm t , so that it may move freely. The opposite end of the crank-shaft u is attached to or pivoted to the crank-shield v .

Inside of the frame $A A$, and upon the rod H' , is swung the treadle I' , by which the press is operated. The purpose of thus constructing and operating the treadle I' is, that by placing the single crank-shaft u outside of the press I can use a counter-balance of the full width that the inside of the press will allow; also, I can use a straight wrought-iron fly-wheel shaft, while at the same time the treadle shall be attached inside of the frame.

The crank-shield v is keyed upon the extreme end of the fly-wheel shaft I , outside of the pinions H . This crank-shield v is used for a double purpose—namely, that of forming a shield to protect the operator or any one from injury that might otherwise be inflicted by the gear G and H when the press is in operation; also, forming a crank to which is attached, as fully described, the crank-shaft u , treadle-rod H' , and treadle I' .

Operation: We will suppose the form or types to have been placed upon the bed B' , the sheet to be printed laid upon the stationary feed-table V against the gages z , the paper tympan-sheet J' occupying the inclined position shown in Fig. 9, and the nippers T and T' in position to receive the sheet, the roller-arms 3 being at the lowest point of their vi-

bration, the bottom of the bed B, the inking-rollers 4 resting upon the ink-distributing cylindrical surface 1. Motion being communicated to the press, the cam upon the blank-crank J, through the arm L and its roller *l*, commences to throw back the trip M, upon which trip M rests the crank-arm *c*, with its roller *d*. As the trip M continues its backward movement or is withdrawn from supporting the crank-arm *c* and roller *d*, the spiral spring *u* closes the jaws of the nippers T and T', which grip the sheet. The pin *e*² upon the trip M now strikes against the cam-shaped piece *b*², and, through the vibrating upright *a*², raises the gages *z*, allowing the sheet to be taken from the stationary feed-table V by the nippers T T'. The vibrating bed B', through the cranks, now commences its forward movement toward the platen B, for the purpose of giving the impression, and the nipper-arms P P, operated by the cam N on the cog-wheel G, commence to descend toward the face of the platen B, carrying with them the nippers T T', which nippers T T' draw the sheet under the gages *z* and from the stationary feed-table V. As the nipper-arms P P commence to descend toward the face of the platen B, the paper tympan-sheet J' is unwound from the roller K', and the sheet to be printed, being drawn off the stationary feed-table V, is received upon the paper tympan-sheet J'. As the bed B' continues to move forward toward the impression, the arms P P, carrying the nippers T and T', with the tympan-sheet J' attached, continue their forward movement until the tympan J' and nippers T and T' impinge upon the lower edge of the platen B, and upon the still further movement of the arms P P the tympan-sheet J' is drawn smoothly over the platen B, and the nippers T and T', vibrating upon the shaft X, are lifted clear from the rod W, or its equivalent, and the forward ends of the nippers T and T' then rest upon or are held up by the platen B. Thus the nipper-arms P P having reached their terminus of motion, the nippers, tympan-sheet, and sheet to be printed are brought into line with the face of the platen, ready for the reception of the impression. During this forward rocking movement of the nipper-arms P P the bed B', through the counter-balance G', has impinged against the spring *r* upon the rod *q*, and the gripper-frame attached to the rod *q* is thrown toward the platen B slightly in advance of the bed B'. When the nipper-arms P P have reached their terminus of motion, above described, the gripper F', through the further movement of the bed B', impinges upon the sheet, gripping the sheet against the platen B. The bed B', still continuing to advance, impinges upon the platen B, and an impression is given. During the forward movement of the bed B' the inking-rollers 4 have been carried from the ink-distributing cylindrical surface 1 up and over the form or types and onto the revolving ink-distributing tabular surface 2. An impression having been

given, the bed B' commences, through the cranks, its return movement from the platen B. As the bed B' recedes, the sheet is relieved from the form or type by the gripper F', and the counter-balance G' gradually ceasing to press upon the spring *r*, the elastic cord or spring *s* brings the gripper-frame back against the hubs 7, or into its first position. As soon as the sheet is properly relieved from the type, the nipper-arms and nippers commence their return movement toward the stationary feed-table V. The elastic cord or spring attached to the roller K' and platen B, as shown, causes the roller K' to turn and wind up the tympan-sheet J'. The movement of the nipper-arms P P continuing, the crank-arm *g*, with its roller *h*, attached to the shaft X, upon which shaft X are the nippers T and T', impinges upon the stationary slotted cam *i*, raising the nippers T and T', and admitting a volume of air between the nippers T and T' and the tympan-sheet J'. The tympan-sheet J', attached to and operated by the nipper-arms P P and roller K', has now assumed the inclined position necessary for the delivery of the printed sheet, and the crank-arm *e* upon the eccentric-shaft *b* impinges upon the trip M and rises upon the same, and through the eccentric *d* opens the nippers T and T', which releases the printed sheet from their grasp. During this upward movement of the nipper-arms and tympan the forward end of the printed sheet has passed under the shield or guide *m*, and such forward end of the sheet has been inclined or thrown down toward the pile-table V², and upon being released from the nippers the printed sheet is properly deposited upon the pile-table V², beneath the sheet catches or holders *k k*, as fully described. When the bed B' has completed its return movement, the rollers 4, carried from the revolving ink-distributing tabular surface 2, having received a supply of ink therefrom, have passed over the form, and at the time of the delivery of the printed sheet have reached the ink-distributing cylindrical surface 1, or their point of starting. The succeeding sheet have been laid against the gages upon the stationary feed-table, the operation just described is repeated. When required to suspend the impression, the handle C² is drawn toward the operator, and the sleeve D is rocked until its plane part is brought to bear against the platen-support 21, the platen B vibrating from the point of receiving the impression. The nippers T and T', resting upon the platen B, as described, are made to vibrate with the platen B, so that when a sheet is held by them (the nippers) it may retain its position upon the platen and be fully removed from the impression.

When it is desirable to print a sheet with a fly-leaf larger than the capacity of the press will print and deliver, if the feed-table be used, the arm O, with its roller *o*, (see Fig. 5,) and the cam N in the cog-wheel G, ceasing to operate the nipper-arms P P, through the

roller, *o*, attached to the arm *O*, the operation of the nipper-arms *P P*, nippers *T* and *T'*, and rolling tympan-sheet *J'* is suspended. The sheet is then laid directly upon the platen *B*, instead of being laid upon the feed-table *V*, as previously described.

Having thus described my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

1. A platen which shall be stationary for the reception of the sheet and for the reception of the impression, (*a*) when such platen shall be vibrated for the purpose set forth, (*b*) when such platen shall be placed at an angle from the horizontal or vertical position, in order that the printed sheet may be readily delivered by the rolling tympan-sheet and sheet-taking nippers, as shown, (*c*) when such platen shall be combined with the sheet-taking nippers held and carried substantially as described, (*d*) when such platen shall be combined with the rocking nipper-arms and the rolling tympan operating substantially as described, for the purposes fully described.

2. The sheet-taking nippers, (*a*) when held and carried by the rocking arms, in combination with a stationary feed-table, as shown, for the purpose set forth, (*b*) when such sheet-taking nippers shall be swiveled and hung upon a cord; so that they must move in any direction in which the rod may be turned, and yet at the same time allow the jaws of such nippers to have an independent movement to and from each other to take and to deliver a sheet, (*c*) when said sheet-taking nippers shall be operated as shown, for the purpose specified, (*d*) when said sheet-taking

nippers holding the sheet and resting upon the platen shall vibrate with the platen, for the purpose shown.

3. The sheet guide or shield, (*a*) when such sheet guide or shield shall be used in combination with the rocking nipper-arms and the rolling tympan operating substantially as shown, (*b*) when such sheet guide or shield shall be used in combination with the pile-table, for the purpose fully shown.

4. For the purpose of giving a more thorough distribution and for supplying ink to the inking-rollers, a revolving tabular distribution-surface upon one side of the form and a revolving cylindrical distribution surface upon the other side of the form, as herein fully shown.

5. Detaching and thereby suspending the operation of the nippers, nipper-arms, and rolling tympan, for the purpose specified.

6. The sheet catches or holders *k k*, (*a*) when such sheet catches or holders shall be combined with the pile-table, for the purpose described, (*b*) when such sheet catches or holders shall be combined with the sheet guide or shield, for the purpose shown.

7. Projecting the stationary feed-table over and beyond the face-line of the platen, for the purpose specified.

8. The sheet-gages constructed substantially as described, in combination with a stationary feed-table, for the purpose set forth.

GEO. P. GORDON.

In presence of—

A. SIDNEY DOANE,
A. TURNER.